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OROBANCHE RAMOSA ON A COLEUS.

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(Plate 145.)

Some time ago I received a package of plants for identification. These specimens were gathered on February 4, 1924, by a *Coleus* grower in his greenhouses in Flushing, Long Island, New York. In his accompanying letter it was stated that, "These sucker plants are a menacing weed in the greenhouses . . . If one of the sucker plants is pulled up, without removing all its roots in contact with the *Coleus* plant, within a month's time it reproduces tenfold in the same place."

An examination of the contents of the package revealed several plants of branched broom-rape, *Orobanche ramosa* L., belonging to the *Orobanchaceae*, a family of parasitic phanerogams. The collection contained several fine plants with well developed flowers and fruits as well as several younger plants some of which were still growing on the roots of stunted and partly dead Coleus plants. Because of the unusual occurrence of this parasite, an examination was made of the available literature on *Orobanche*, but no record could be found of *O. ramosa* L. occurring as a parasite on Coleus in this country, nor on any other host in New York State. According to Garman (2) *Orobanche ramosa* L. is common on hemp, *Cannabis sativa* L., and tobacco, *Nicotiana Tabacum* L., in Kentucky, and has been reported on tomato, *Lycopersicum esculentum* L., in New Jersey. Koch (3), in Europe, reported *O. ramosa* L., on a number of hosts, including *Coleus Blumei* Benth. Beck (1) reported it as a parasite on 35 hosts belonging to a number of widely separated families, especially Solanaceae, Urticaceae, Labiatae, and Compositae.

Dr. R. J. Haskell informed me that the files of the Plant Disease Survey Office contain no record of *Orobanche ramosa* L. on *Coleus*, nor does the herbarium of the Pathological Collections in the Bureau of Plant Industry contain any specimens of it. The only specimens of *Orobanche ramosa* L. in the Gray Herbarium[1] are those on hemp, or those with no host reported, from Illinois and Kentucky. This species is represented in the National Herbarium[2] by specimens on hemp from Kentucky, Illinois, and California and specimens on tobacco and tomato from Kentucky.

According to Gray's Manual, *Orobanche ramosa* L. has been introduced from Europe. Garman (2) states that it was probably imported from China with hemp seeds. The seeds are very small and are known to have kept their vitality for 13 years while lying in the soil, Garman (2). Immediately after germination the seedlings attach themselves to the roots of the host plants. It is possible that the infestation of *O. ramosa* L. on Long Island may have originated from seeds that have been introduced recently. However, it is also possible that this parasite has been growing unobserved on other hosts in the same vicinity and that the seeds were brought into the greenhouse with soil or mulch.

The purpose of this note is to record the occurrence of *Orobanche ramosa* L. on *Coleus* which is interesting not only because of its rarity but also because of the damage it was doing on *Coleus* in the greenhouses. Apparently this is the first record of its occurrence on *Coleus* in North America. The determination of the specimens was verified by Dr. K. M. Wiegand, and specimens have been deposited in the herbarium of Cornell University and also in the National Museum.

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CITATIONS.

1. **Beck, Günther, Ritter von Mannagetta.** Monographie der Gattung Orobanche.
Bibliotheca Botanica **19:** 1–275; PL. 1–14; FIG. 1–11; 1890.

2. **Garman,** H. The Broom-rapes.
Ky. Agric. Exp. Sta. Bul. **105:** 1–32; FIG. 1–15. 1903.

3. **Koch, L.** Die Entwicklungsgeschichte der Orobanchen. 389 pp. Pl. 1–12. Heidelberg, 1887.

[1] Courtesy of Mr. A. S. Foster.
[2] Courtesy of Mr. G. H. Martin.

EXPLANATION OF PLATE 145.

Coleus plant parasitized by *Orobanche ramosa* L. FIG. 1, *Coleus* plant; figs. 2, 3, and 4, very small *Orobanche* plants attached to *Coleus* roots; fig. 5, a small flowering plant of *Orobanche*; fig. 6, a larger detached *Orobanche* plant not fully developed. Natural size.—Photo by W. R. Fisher.

EXTENSIONS OF RANGE AND A NEW VARIETY IN SALIX.

CARLETON R. BALL.

OUR knowledge of the distribution of species, and of their numerous variations increases steadily. Amateur, subprofessional and professional botanists all have contributed largely to this result. The writer has been most fortunate in having had opportunity to study and identify many of the willow collections from all classes of botanists in the United States and Canada. This has given rise to a series of papers[1] describing new species and varieties, and recording extensions of range.

In the third[2] of these papers the willows of the Black Hills of South Dakota were discussed chiefly in the light of recent collections made by John Murdoch, Jr., T. C. Setzer, and N. E. Petersen, of the U. S. Forest Service. Of the 12 species listed, the one recorded as *S. fluviatilis* Nutt. is *S. interior* Rowlee, the Nuttall plant being confined to the lower Columbia River.[3]

In addition to the 12 species recorded for the Black Hills district, *cordata* occurs in the eastern portion of the State. To these 13 species, the present paper adds to the known flora of South Dakota 3 species, *missouriensis*, *petiolaris* and *candida*, and a new variety of *discolor*. This makes a total of 16 species of Salix recorded for the State.

[1] Ball, Carleton R. Notes on North American Willows I–III. Bot. Gaz. **40:** 376–380, pls. 12–13, 1905; ibid. **60:** 45–54, figs. 3, 1915; and ibid **60:** 391–399, 1915, respectively.

————Undescribed Willows of the Section Cordatae. Bot. Gaz. **71:** 426–437, fig. 1, 1921.

————Notes on Willows of the Sections Pentandrae and Nigrae. Bot. Gaz. **72:** 220–236, figs. 1–4, 1921.

————and Kirk Whited. Pruinose Branchlets and Salix lemmoni Bebb. Am. Jour. Bot. (in press). 1923.

[2] Bot. Gaz. **60:** 391–399, 1915.

[3] Ball, Carleton R. Notes on North American Willows II. Bot. Gaz. **60:** 52–54, 1915.